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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KUMAR, SRILAKSHMI K	
ART UNIT	**PAPER NUMBER**
2675	18

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/512,267	PARK ET AL.	
	Examiner	Art Unit	
	Srilakshmi K. Kumar	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-43* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The following action is in response to Amendment D, filed October 17, 2003. Claims 24, 26, 27, 29, 30, 33, 35, 36, 38, 39 and 43 have been amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 24-31 and 33-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 6,229,516) in view of Tanioka et al. (US 5,093, 655).

As to independent claims 24 and 33, Kim et al disclose a liquid crystal display (Fig. 2) and a method for driving a liquid crystal display (LCD) having a first gate line block (Fig. 2, items 22, upper gate, G1 to Gm) and a second gate line block (Fig. 2, items 24, lower gate, Gm+1 to G2m), the system and the method comprising the steps of;

providing a first pixel voltage to a first pixel electrode formed in the first gate line block (col. 4, lines 4-36); providing a second pixel voltage to a second pixel electrode formed in the second gate line block (col. 4, lines 4-36); providing a common voltage to a common electrode (col. 4, lines 4-36); Kim et al do not disclose pixel voltage. It would have been obvious to one of ordinary skill in the art that Kim et al have the pixel voltage as every liquid crystal display needs pixel voltage in order to function.

providing a first data signal to a first data line formed in the first gate line block (Fig. 2, col. 4, lines 4-36), said first data signal influencing a first voltage difference between the common voltage and the first pixel voltage stored in the first pixel electrode; Kim et al do not disclose a first voltage difference between the common voltage and the first pixel voltage. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage, thus disclosing where the data signal influences a difference between the common voltage and pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

providing a second data signal to a second data lined formed in the second gate line block (Fig. 2, col. 4, lines 4-36), said second data signal influencing a second voltage difference between the common voltage and the second pixel voltage stored in the second pixel electrode; Kim et al do not disclose a second data signal influencing a second voltage difference between the common voltage and the second pixel voltage. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage, thus disclosing where the data signal influences a difference between the common voltage and pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

and controlling the first data signal and the second data signal to simultaneously increase or decrease the first voltage difference and the second voltage difference (col. 4, lines 4-36).

As to dependent claims 25 and 34, limitations of claims 24 and 33, and further comprising, wherein the first pixel voltage has a first polarity with respect to the common voltage and the second pixel voltage has a second polarity with respect to the common electrode different from the first polarity. Kim et al do not disclose different polarities. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

As to dependent claims 26 and 35, limitations of claims 25 and 34, and further comprising, wherein the step of controlling the first data signal and the second data signal comprises the step of providing the first data signal of the first polarity and the second data signal of the second polarity to simultaneously increase the first voltage difference and the second voltage difference. Kim et al do not disclose different polarities. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

As to dependent claims 27 and 36, limitations of claims 25 and 34, and further comprising, wherein the step of controlling the first data signal and the second data signal comprises the step of providing the first data signal of the first polarity and the second data signal of the second polarity to simultaneously decrease the first voltage difference and the second voltage difference. Kim et al do not disclose different polarities. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

As to dependent claims 28 and 37, limitations of claims 24 and 33, and further comprising, wherein the first pixel voltage has a first polarity with respect to the common voltage and the second pixel voltage has the first polarity with respect to the common voltage. Kim et al do not disclose different polarities. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

As to dependent claims 29 and 38, limitations of claim 28 and 37, and further comprising, wherein the step of controlling the first data signal and the second data signal comprises the step of providing the first data signal of the first polarity and the second data signal of the first

polarity to simultaneously increase the first voltage difference and the second voltage difference. Kim et al do not disclose different polarities. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

As to dependent claims 30 and 39, limitations of claims 28 and 37, and further comprising, wherein the step of controlling the first data signal and the second data signal comprises the step of providing the first data signal of the first polarity and the second data signal of the first polarity to simultaneously decrease the first voltage difference and the second voltage difference. Kim et al do not disclose different polarities. Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49.

As to dependent claims 31 and 40, limitations of claims 24 and 33, wherein the first pixel electrode and the second electrode are adjoining each other (Fig. 2, col. 4, lines 4-36).

As to dependent claim 41, limitations of claim 33, and further comprising, wherein a first data driver connected to the first data line for transferring the first data line thereto and a second

data driver connected to the second data line for transferring the second data line thereto (Fig. 2, col. 4, lines 4-36).

3. Claims 32 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 6,229,516) in view of Tanioka et al. (US 5,093, 655) as applied to claims 24 and 33, above, and further in view of Konoue et al (JP03125187).

As to independent claim 43, limitations of claims 24 and 33, and further comprising, a data driver controlling the first data signal and the second data signal (Fig. 2, items upper and lower frame memory); and a gate driver connected to the plurality of first gate lines (Fig. 2, item 22) and the plurality of second gate lines (Fig. 2, item 24) and scanning the plurality of first gate lines in a first direction and the plurality of second gate lines in a second direction different form the first direction. Kim et al does not disclose where the gate lines are scanned in different directions. Konoue et al disclose a display device and scanning method for a display device, where in Fig. 2a and the Constitution on page 1, the screen is divided into upper and lower parts A and B, where the first scanning direction is opposite to the second scanning direction as shown by the solid arrowed lines. It would have been obvious to one of ordinary skill in the art to combine Kim et al with that of Konoue et al as the system of Konoue et al is shown to improve the continuity of an image at the border of each block in a display area and to preclude deterioration in picture quality.

As to dependent claims 32 and 42, limitations of claims 24 and 33, and further comprising, wherein the LCD has more than two gate line blocks. Kim et al do not disclose more than two gate line blocks. Konoue et al disclose in Fig. 2b, A, B and C gate line blocks. It would have been obvious to one of ordinary skill in the art to combine Kim et al with that of

Konoue et al as the system of Konoue et al is shown to improve the continuity of an image at the border of each block in a display area and to preclude deterioration in picture quality.

Response to Arguments

4. Applicant's arguments filed October 14, 2003 have been fully considered but they are not persuasive.

With regards to amended independent claims 24, 33 and 43, applicant has stated that a first and second voltage difference is not shown by the prior art Kim et al. and Tanioka et al. Examiner disagrees. As is disclosed in the claimed limitations, Tanioka et al disclose in Fig. 1, items 60-70 and col. 4, lines 13-26, where the polarities of the data voltages supplied to the pixels are opposite to each other with respect to the common voltage, thus disclosing where the data signal influences a difference between the common voltage and pixel voltage. It would have been obvious to one of ordinary skill in the art to incorporate the polarity system of Tanioka et al into that of Kim et al. To reverse polarity is advantageous as it reduces flickers of the entire picture face as is disclosed by Tanioka et al in col. 2, lines 43-49. Further, voltage differences between a common electrode and a pixel electrode are obvious to one skilled in the art as LCDs with gray scale will have voltage differences which is known as pulse amplitude modulation with a split screen display. Thus, the above rejection is maintained.

Conclusion

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Or faxed to:

(703) 308-9051, (for formal communications intended for entry)

Or:

(703) 308-6606 (for informal or draft communications, please label

"PROPOSED" or DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive,

Arlington, VA, Sixth Floor (Receptionist)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 703 306 5575. The examiner can normally be reached on 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on 703 305 9720. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305 4700.

Srilakshmi K. Kumar
Examiner
Art Unit 2675

SKK
February 20, 2004

DENNIS-DOON CHOW
PRIMARY EXAMINER